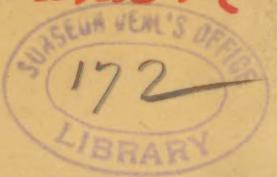
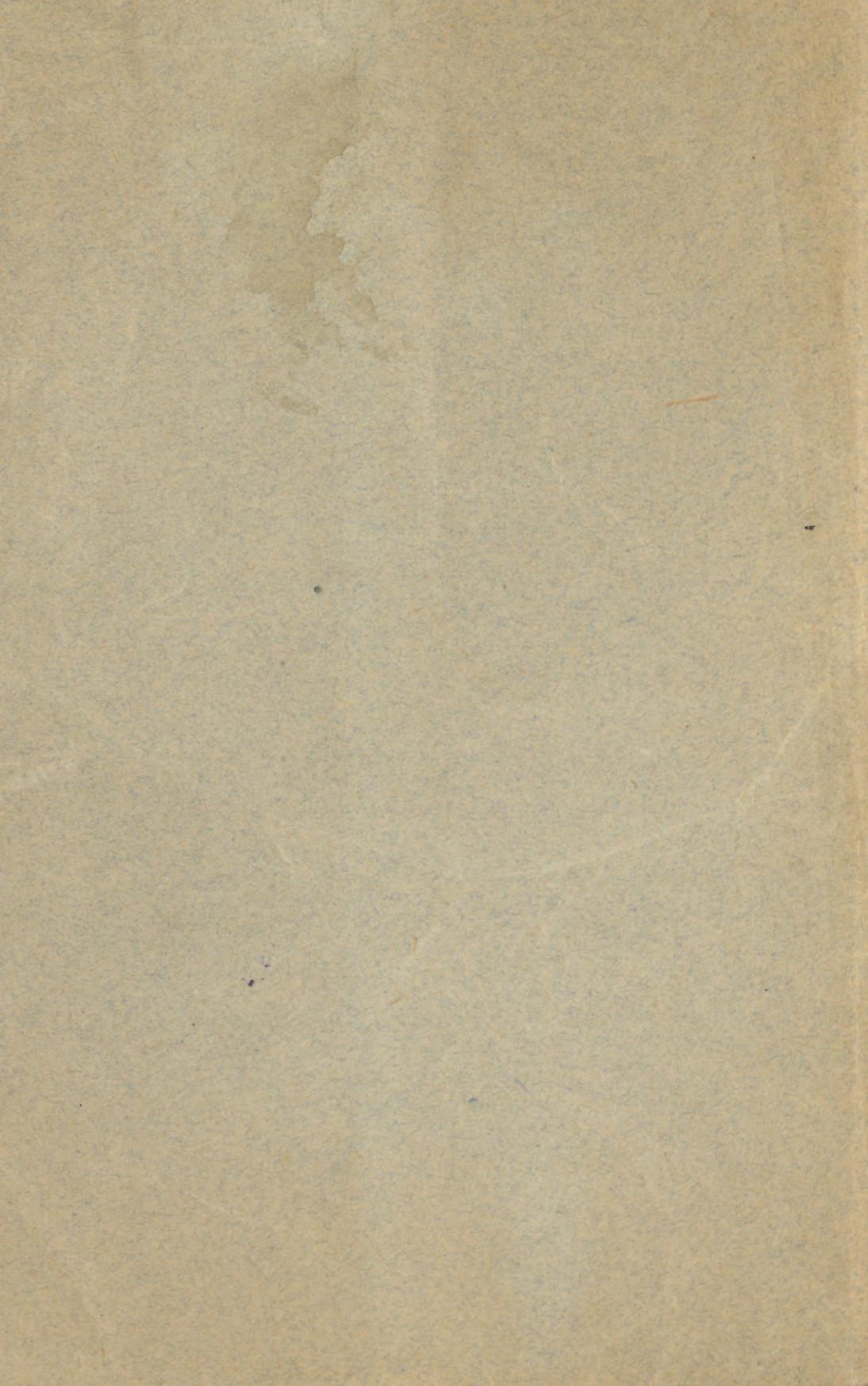


COHEN (J. SOLIS)

The throat and its diseases





# THE THROAT AND ITS DISEASES.

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N.Y.,  
1880.

Wood's household  
pract. of med., v. 2





## THE THROAT

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THE THROAT is a double passage-way through which the air we breathe reaches the larynx on its way to the lungs, and through which the food we swallow reaches the gullet on its way to the stomach. It is therefore a very important portion of the body, being employed in the two functions of respiration and alimentation (feeding), the former being the more essential of the two.

As shown in the adjoining diagram, it will be seen that there are two routes by which the air is conveyed to the larynx : 1, *The normal respiratory route* through the nostril, as indicated by the upper dotted line in the diagram; and 2, *The accessory respiratory route* through the mouth, as indicated by the lower dotted line. The route taken by food and drink, *the alimentary route*, is indicated in the diagram by the solid line passing through the mouth, beyond the larynx, into the gullet (food-pipe, oesophagus) behind. The larynx is composed of rigid structures which keep its calibre open for the necessary ingress and egress of the air in respiration; while the gullet is a soft tube, composed of flexible structures, the walls of which are in close juxtaposition, except when forced open by the muscular act or effort of swallowing to receive the food or drink. As the food-pipe is behind the air-pipe, articles of food or drink might easily fall into the larynx by accident, were it not for a cover or valve at the top of the front part of the larynx, which is pressed right down upon it, like a trap-door over a hole or the lid on a molasses-jug, in the motion of swallowing, during the momentary

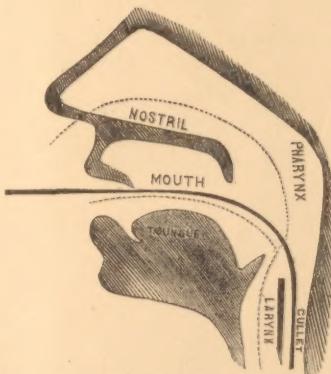


FIGURE 114.—Diagram of the routes taken by the air to reach the lungs, and by the food to reach the stomach.

performance of which act respiration is necessarily suspended. If one talks or laughs while swallowing, the trap-door may remain open and some food or drink may get down the wrong way and

enter the larynx, provoking spasmodic efforts of cough to expel it —an occurrence with which almost every one is familiar.

The nostril is the proper passage for respiration, but when stopped up by mucus, a swelling, a morbid growth, or a foreign body, the *accessory respiratory route* (the mouth) must be used for this purpose; and in fact it will be found that in most instances where people breathe by the mouth, there is more or less obstruction of some kind in the nose.

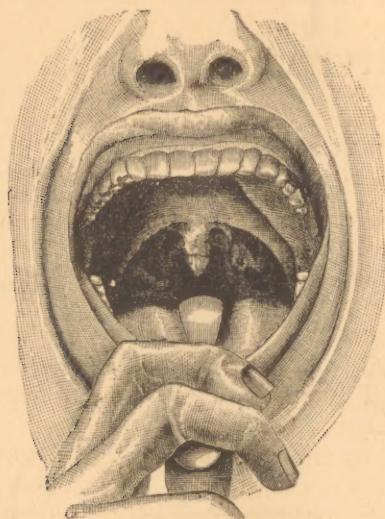
That portion of the throat in which the respiratory and alimentary tracts cross, is known as the *pharynx*, and it extends from the base of the skull behind the nostrils (see diagram) as far down as the entrance into the gullet, with

FIGURE 115.—The soft palate and tonsils, as seen from the mouth.

which it is continuous. It is therefore somewhat the shape of the top of a buggy-wagon or a barouche. [For an account of the anatomy of the parts concerned, the reader is referred to the chapter on Anatomy.]

#### CARE OF THE THROAT.

Many individuals are very subject to diseases of the throat and nasal passages; a slight exposure to wet, change of temperature, change of clothing, change of bed-room, or the like, rendering them susceptible to sore throat, quinsy, cold in the head or chest, or whatever may be the special affection to which they are liable. It is useless to attempt to avoid this by taking medicine. Much may be done, however, to secure immunity from attacks of the kind on slight provocation, by methodically inuring the body to withstand the unavoidable exposures to which every active person is more or less subject in our variable climate. This is not to be done by the use of chest protectors, mufflers, heavy overclothing, furs, and like wraps. Far from it. The habitual use of these



things only serves to confirm the delicacy of constitution which they are fondly believed to protect; and when they are left off, or by accident or inadvertence forgotten, a severe attack of the complaint to which the individual is predisposed is almost certain to be the penalty. The causes of the predisposition alluded to are various. Sometimes the infirmity is hereditary. People are physically very much what their parents make them. Delicate or ailing parents are likely to breed delicate and unhealthy children. Hence the great number of deaths during childhood—weedings out, as it were, of the immature. Daily sponging of the body with cold water, on rising, is the best method of inuring the skin to withstand accidental exposure to wet and changes of temperature.

Among the exciting causes of diseases of the throat and nasal passages may be mentioned: Sudden exposures to excessive changes of temperature out of doors and indoors, especially exposure to cold when the body is overheated, no matter how the overheating may have been produced; sitting, working, and sleeping in ill-ventilated apartments; sojourn in crowded places, whether church, school-room, theatre, court-room, ball-room, or street-car; exposure to air vitiated by illuminating gas, coal gas, tobacco-smoke, the products of chemical combustion, and the like; the indulgence in cold drinks on the top of hot viands; immoderate use of iced water in summer time, especially when the body is overheated by exercise; too protracted contiguity to patients with scarlet fever and diphtheria.

It is much more rational to prevent disease than to trust to getting cured after contracting it. Persons subject to sore throat, whether hereditarily predisposed thereto or otherwise, should avoid all the sources of injury above enumerated. They should wear woollen or silken (*animal fabrics*) underclothing, changing the weight or texture of the garment on the positive approach of change of season.

When going from a warm and especially from a crowded room into a chilly outside atmosphere, the precaution to breathe for the first few minutes through the nose only, or through the meshes of a shawl, handkerchief, or folded veil, is all that will ordinarily be needed.

Where children are accustomed to breathe through the open mouth, this should lead to an examination, and it will probably be found that enlarged tonsils are the cause of the difficulty, and that they require removal by some of the methods to be hereafter detailed. The harm which results from breathing through the mouth, instead of the natural respiratory passage, is that the throat is rendered dry and apt to become inflamed; that the air is not prop-

erly warmed and moistened by passing over the wet and warm surfaces of the bones of the nose before it reaches the delicate vocal organ, and that dust and irritating matter, which *should* be arrested in its passage through the nose, is carried into the respiratory organs, and becomes a cause of disease.

[In England, more commonly than in this country, it is customary to wear a respirator made of some sort of gauze, or sponge over the nose and mouth; but the instances in which such protection is needed are far less than would justify the extent of the practice, if we except those connected with some of the trades. Indeed, among workmen who *could* derive decided benefit from the use of some such means for excluding foreign matter from the throat and air-passages, the use of respirators is much too seldom resorted to.]

#### THE VOICE.

A short account of the nature of the voice and its production, will insure a better comprehension of the method of taking care of it.

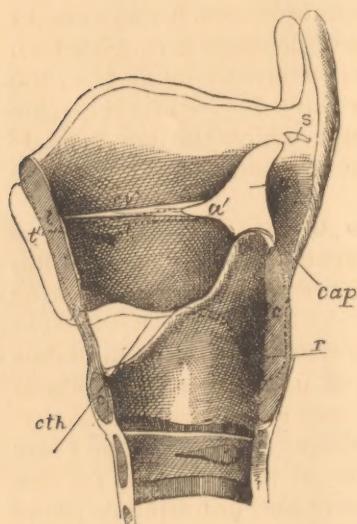


FIGURE 116.—Section through the cartilages of the larynx, showing the inner surface of the right side. *l*, thyroid cartilage cut through its centre, in front; *c, c*, front and rear portion of the cricoid cartilage, similarly divided; *a*, inner surface of the right arytenoid cartilage; *a'*, its anterior projection; *cv*, thyro-arytenoid ligament.

The *voice* is the sound voluntarily made in the throat for the usual purposes of communication and intercommunication; and it is broken up in an arbitrary manner, different as adopted by different nations or communities, by the physical action of the lips, tongue, teeth, and palate, into accentuated or articulated speech; while the modulation of the pitch and volume of the sounds gives expression to the utterances. The voice is formed in the larynx (vocal-box) (Fig. 116), on top of the windpipe, by the forcible action of an outward or expiratory current of air striking or impinging upon two tense bands or folds of membrane (vocal cords *cv*) which run from front to back in this box, in close contact in front, and movable behind *a'*, their to-and-fro movement being similar to that of the handles of a pair of scissors. These vocal cords are set into vibration just as the reeds of an accordion are set into

vibration by the wind from the bellows of that instrument. The hard, angular projection in the anterior part of the neck *t*, more prominent in men than in women, marks the junction of the two sides of this triangular vocal-box or larynx. If the finger is run down this projection, a soft depression *cth* is felt just before it joins a circular base (*cricoid* or ring-cartilage *c*), which is situated directly on top of the windpipe, of which it is actually an expanded continuation. If the finger be held against the soft part just indicated while the voice is sounded, the vibrations can be distinctly felt, because a thin membrane is there which is actually continuous with the vocal cords, which are located a little above it in the shape of a rather horizontal V, the legs of which are directed backward. The production of voice is due to the vibration of these cords, and to the vibration of the air in the air-tubes, throat, nose, and mouth, as can readily be felt in the chest when one speaks in a deep-toned voice ; and even the trunk and limbs vibrate just like the sounding-boards or walls of musical instruments in certain deep and sonorous tones.

The *intensity* or loudness of the voice is due to the size of the vibrations, or, in other words, to the extent of to-and-fro movement impressed upon the vocal cords ; the larger the space through which they vibrate, the greater is the quantity of air set in motion, the larger the wave of sound, and the louder the voice ; while the voice becomes more feeble as the space through which the vocal cords move becomes diminished. Intensity is independent of pitch and quality.

The *pitch* of the voice (its position in the musical scale) is proportionate to the frequency of the vibrations ; the greater the number per second, the higher the pitch. Pitch is independent of intensity and quality.

The *quality* of the voice (that characteristic which distinguishes it from the sound of an artificial musical instrument, and which makes it easy to recognize the voice of any one individual as different from all others) is due to the shape impressed upon the sound-waves by the consentaneous action of the different factors of the sound (fundamental tones, harmonic and unharmonic overtones, combination tones), owing to the fact that all musical sounds are composed of series of tones, most of which are produced by vibrations of the sounding body (vocal cords in man and animals) in certain aliquot parts, at the same time that it is vibrating as a whole. The more harmonious these individual tones, the sweeter the sound as a whole ; the more discordant these individual tones, the harsher the sound of the voice as a whole. The comprehension of this physical fact is rather difficult,

and would require a good deal of space for its elucidation. The reader is therefore referred for details to works on physics, on acoustics, or on sound. Quality is independent of intensity and pitch.

To understand the physical formation of the registers of the voice, it is necessary to see the performance. This can be accomplished by placing a small mirror in the mouth in such a position as to get a reflected view of the image of the vocal-box (larynx) and its contents, as shown in this figure below, in which the image of

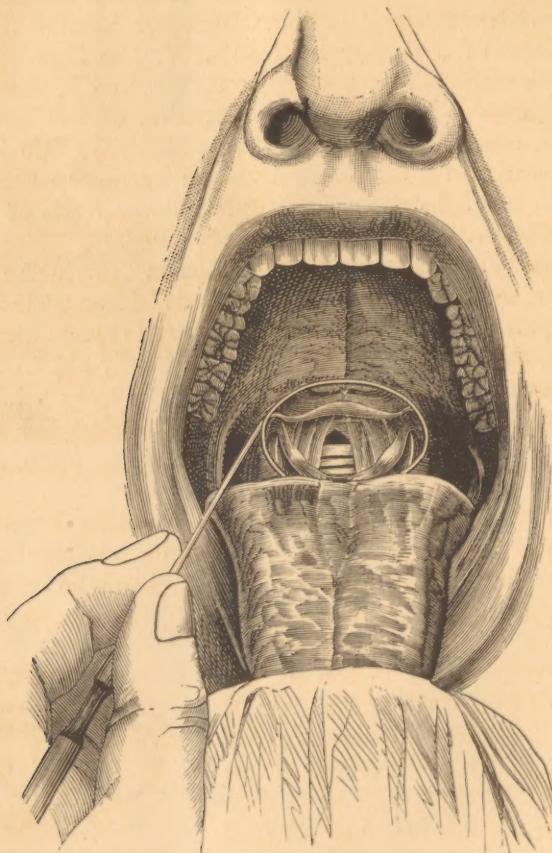


FIGURE 117.—The larynx in the respiratory position, as seen in an image reflected in a glass mirror held far back in the mouth.

the larynx is seen as reflected in a mirror in the mouth. This ingenious and beautiful method of exhibiting the larynx of a living person and studying the action of the vocal cords in the formation of voice is known as the art of laryngoscopy (viewing the

larynx), and the demonstration of its feasibility is chiefly due to the assiduous efforts of Mr. Manuel Garcia, a celebrated teacher of vocal music in London, who devised it for the purpose of studying the mechanism of the voice. Since the publication of Garcia's observations, the method has been extensively introduced into the practice of medicine in the examination and treatment of many affections of the throat.

As depicted in the above illustration, the vocal cords are repre-



FIGURE 118.—Method of examining the larynx by solar reflection.

sented widely separated behind, as seen during a deep inspiration, which renders the rings of the windpipe visible below them. When the voice is produced, the vocal cords have to come together posteriorly, as shown in Fig. 119, leaving a delicate slit between them, through which the expiratory current of air is forced, setting the cords into vibration; an effect which is readily observed in the mirror. Of course the rings of the windpipe and all the other structures below the vocal cords are shut off from view as long as the voice is being sounded. When the pitch of the voice is raised, the vocal cords are seen to become more tightly stretched, and the slit between them to become shorter, so as to leave a shorter and more tense portion of the cord free to vibrate; the pitch rising just the same as when the cord of any stringed instrument of music is shortened, and stretched more tightly.



FIGURE 119.—Vocal cords closed, as seen in the production of vocal sound.

There are three principal *registers* of the voice : chest, falsetto, and head-notes. In the formation of the *chest-notes*, the vocal cords are seen to vibrate their entire breadth. In the formation of the *falsetto-notes*, the vibration is confined to their edges. In the formation of the *head-notes* (common to women, exceptional in men), the vocal cords become so tightly pressed together behind, that there only remains an open slit or fissure for little more than half the length of the vocal cords, which vibrate only in their free edges.\*

## The usual range of the four varieties of the human voice.

## CARE OF THE VOICE.

When we consider that the entire compass of the voice is due to the symmetrical action of two vocal cords, little bands of tissue, as thin at their edges as a sheet of ordinary writing-paper, less than an inch in length, about one-tenth of an inch in breadth, and with but one free surface each, we can readily comprehend how delicate must be the mechanism and arrangement of the nervous and muscular structures that animate them and alter their position and tension in order to produce those charming effects with which all listeners to good vocal music and good oratory are familiar. It is no wonder, then, that good voices are so often irretrievably injured by injudicious management. No teacher of elocution or of vocal music should be trusted now-a-days with the training of a voice of some consequence to its possessor, unless that teacher has a comprehensive acquaintance with the anatomy, physiology, and mechanism of the voice. As already mentioned, the special mechanism of the sounds of the chest, falsetto, and head registers are dissimilar. If, then, an ambitious teacher tries to force the chest tones into the falsetto register, or the falsetto into the head register, he is apt to inflict injury upon the delicate mechanism, whether he accomplishes his object or not. The proper points of transition can be observed in the mirror, and can be detected by an educated

\* For more detail, the reader is referred to Mrs. Seiler's reliable work on "The Voice in Singing," published in Philadelphia.

ear, so that there is no excuse for neglecting their study. Surely no master, with a real love for his art, should hesitate to avail himself of the advantages to be gained by such observations. The manual skill necessary for the manipulation of the throat or laryngoscopic mirror can be acquired in an hour ; the cost of the mirror is about one dollar. The anatomy of the parts, once carefully pointed out in a human larynx, can be thoroughly studied up at leisure in calves' larynges (which can be had from any butcher for the asking), and the rest is a question of time and facility of comprehension. The result of the outlay, in intelligent knowledge of the tools with which he is to work, will be immeasurably in excess of its cost to any teacher of vocal culture, not to count its personal advantages in improving his own skill in the use of his voice, or in developing the vocal capabilities of his pupils. Anything which strains the vocal cords, such as screaming, prolonged use of the voice, talking or singing in too high a key, using the voice to any extent when fatigued, overfed, unwell, or hoarse, is sure to be injurious, and should be studiously avoided by all public singers and speakers. It is neglect of care of this kind which drives so many from the stage, concert-room, and pulpit during a prolonged period of inaction ; and it is rare that an injured voice recovers all its previous tractability. All those injurious influences enumerated in connection with the subject of care of the throat are injurious to the voice. A slight congestion of the cords, from cold or overstraining, is sufficient to withdraw them from the exquisite control of muscular effort so essential to the formation of pure tones ; and the swelling of inflammation changes their physical capacity for tone still more so, and, in addition, sometimes prevents their being brought sufficiently near each other to produce any tone at all, so that the voice is lost, for the time being, unless under the force of violent effort, in itself injurious. One should, therefore, cease speaking in public, or singing anywhere, the moment there is any manifestation of hoarseness, however slight. There is no compromise possible, if the individual is not to run the risk of more or less prolonged hoarseness, or trouble more serious. Indeed, preachers and professional and domestic vocalists should speak altogether in whispers whenever their voices are hoarse ; and those who do not sing or lecture, and to whom alteration of the voice is but of little moment, should use the voice as little as practicable whenever it is affected. Silence, ice to the throat, externally and internally, a smart saline or castor-oil purge, and the avoidance, for a few days, of red meat and alcoholic beverages of all kinds, will, in most instances of slight recent injury to the voice, suffice for treatment. In cases of severe injury, and in

cases of long standing the advice of the physician is essential. Silence in cases of affected voice is more than golden to the individual who is dependent on skill in its use for support.

## DISEASES OF THE THROAT.

### Sore Throat.

Sore throat may be confined either to the parts back of the mouth (palate, tonsils, pharynx), or the deeper portions (larynx, windpipe), or it may affect all these structures more or less. Sore throat is a frequent accompaniment of scarlet fever, measles, small-pox, erysipelas of the face, and other affections. It is one of the prominent manifestations in diphtheria. It is also an accompaniment of many cases of pulmonary consumption, especially toward their final stages ; and is a very frequent manifestation in the constitutional ravages of syphilis, after the system has become impregnated with the virus. It may be brought on by voluntary or accidental swallowing of hot and corrosive fluids ; by exposure to respiration of noxious gases and fumes ; by the inhalation of dust, smoke, grit, and the like ; by loud and continuous talking and overstraining the voice in various ways ; by the abuse of tobacco, alcoholic beverages, highly seasoned food, or of hot and cold viands in close succession.

The most frequent cause of sore throat is exposure to cold when the body is overheated.

The **Symptoms** of sore throat are pain, redness, swelling, difficulty of breathing, difficulty of swallowing, cough, expectoration, hoarseness, and impairment or loss of voice. The intensity of the symptoms vary with the amount of inflammation, the extent of surface over which it extends, the nature of the tissue in which the diseased process is going on, and the mechanical interference with the functions of breathing, swallowing, and speaking. Some cases are so slight as hardly to attract attention, and others are more severe, so as to interfere with the due performance of one's duties.

**Treatment.**—Most cases will get well if they are only left alone without resort to any of the numerous advertised syrups, lozenges, and other remedies. All that needs to be done is to remain quiet, avoid conversation, to see that the body is well protected by proper clothing day and night, avoiding exposure to cold and wet ; to suck bits of ice almost continually if the throat is hot, swollen, and painful, and to apply iced cloths or bags of pounded ice exter-

nally, changing them as soon as they get warm, and to eat very plainly cooked food, and very little of it. If the bowels have been confined, a smart purging will be useful, and nothing is better than a dose of Epsom salt (a tablespoonful for the adult, in a tumbler of water, before breakfast) in summer, or of an infusion of senna (one or two drachms for the adult) and manna (one ounce for an adult) in winter. If the sore throat is not of more than twenty-four hours' standing, it is a good plan to put the legs into hot water well impregnated with mustard, until they get very red, take something in the nature of a hot drink, and then jump right into bed between blankets, and remain there until late the following morning. This treatment will often cure a mild sore throat in two or three days; and neglect of it will often convert a mild and easily managed case into a protracted and obstinate one. If the treatment here laid down is not promptly followed by amelioration of the symptoms, it may be taken for granted that the case is beyond the ordinary resources of home remedies, and the sooner the medical attendant is summoned the more quickly will the patient get relief and be placed on the road to recovery. Meanwhile, the sufferer may suck a sal-prunell ball, and cover the neck with a flannel wrung out of heated camphor-water, or a mixture of oil of turpentine with three times as much sweet-oil.

Severe sore throats should always be reported promptly to the physician. Delay of only a few hours often renders it impossible to institute measures to restrain inflammatory action, and the disease will have to run its course. The neglect of proper management is almost sure to be punished by chronic or protracted suffering. A brief description will be given of the severer forms of sore throat, in order that they may be promptly recognized, and such measures advised as are judicious to be employed until the arrival of the medical attendant. Any one ignorant of medical subjects and of the natural history of disease who meddles with powerful drugs is much more likely to do irreparable injury than temporary good. It is almost always "hit or miss," and the misses inevitably preponderate; not unfrequently they are the immediate precursors of fatal results.

#### Enlarged Tonsils.

[The tonsils consist of two rounded or ovoid bodies the size of a cherry, and are made up of connective tissue, holding together a number of glands which secrete a thick, glairy mucus, and have a number of openings upon the surface of the tonsil. They are situated on the sides of the throat between the folds of the palate.

(See Fig. 120.) They are often swollen in children and young persons, as a result, so it is thought, of a scrofulous constitution, and quite frequently on account of repeated attacks of sore throat.]

A slight enlargement of the tonsils produces no unpleasant symptoms ; but when they are large enough to project some considerable distance into the free passage of the throat, they interfere with swallowing and sometimes with respiration. They push the soft palate away from the back part of the throat and produce a nasal twang of the voice, with the addition of a peculiar tone due to interference with proper articulation. Sometimes they are large enough to touch each other, and they then prevent a proper amount of air from entering the lungs, and compel the patient to maintain a certain position of the neck, which renders him what is called "round-shouldered." When very large they have been known to produce suffocation. The liability of chronically enlarged tonsils to become inflamed is quite great, and such attacks are usually severe. Sometimes they become ulcerated. Sometimes the glands secrete a mucus, which cannot escape freely from the little orifices, and it undergoes a transformation into a cheesy material of very fetid character. These little masses are often spat out from time to time, and when crushed emit a very offensive odor.

**Treatment.**—The treatment of enlarged tonsils usually demands the use of nutritious diet and often that of cod-liver oil to improve the general health. The best home treatment, when they are soft, is the application of ox-gall, either fresh or partly dried by evaporation, twice or thrice daily; the application being made by a finger of one hand while the fingers of the other hand support the neck outside so as to press the tonsil in both directions. Simple compression of this kind, without any local medication, applied several times a day, will sometimes promote the absorption of these bodies if the enlargement is soft and of recent standing. Gargles of water containing chlorate of potassium, alum, white-oak bark, or rhatany, are sometimes useful, and so is the local use of sprays, as recommended for chronic sore throat. [For the proportions of these, see the formulas at the end of the second volume.] If the increase in size is very great (and these simple measures are not of any service after a few weeks' trial), the services of a surgeon will become necessary to cut off a portion of the gland or reduce its size by the application of strong caustics.

[*Pigeon breast* is also a result of considerably enlarged tonsils. When the diaphragm contracts during inspiration and the floor of the thorax is pulled downward, a vacuum tends to be made in the chest cavity, air rushes in to fill it from without, and the vacuum is prevented. If air is not admitted as rapidly as the vacuum de-

mands, the weight of atmospheric pressure on the flexible walls of the chest causes the ribs and cartilages to bend inward and assume the appearance characteristic of this deformity. Furthermore, the development of the chest is interfered with, and the lungs, especially about their upper portions, never acquire the capacity essential to health: and as the period during which development can take place is limited to youth, the person who has been allowed to suffer in the manner described remains deformed for life, and is especially liable, it is thought, to the development of consumption.

#### Inflammation of the Tonsil—Quinsy Sore Throat.

This is almost entirely a disease of temperate and changeable climates, is most common among persons between sixteen and thirty years of age, and is only rarely seen among children. It consists of an inflammation of the mucous membrane covering the tonsil or of the deeper portion of the glands, and either one or both tonsils may be affected, although it is more common that one alone is inflamed at a time. Persons who have a tendency to suffer from rheumatism are thought to be especially liable to this trouble. The most frequent exciting cause (where one can be recognized) is exposure to wet and cold, particularly during a north-east wind (in the Atlantic States). When atmospheric causes exist there will usually be a number of cases in the same community.

**Symptoms.**—A chill usually occurs at the outset, followed by considerable fever, which is accompanied by aching of the muscles generally, “as if they had been pounded.” There is headache and a pain in the throat on the side affected, and the pain will very probably be increased by movements of the jaw and efforts to swallow. On looking at the tonsil, it is seen to be red and swollen. As the disease progresses, the swelling and pain increase, until swallowing becomes difficult or almost impossible; while, to aggravate the trouble, the saliva is increased in quantity, and, rather than subject himself to the torture of swallowing, it is allowed by the patient to run from the mouth. In a well-marked case of quinsy the breath acquires a peculiar odor, quickly recognized when once smelled, and the voice becomes thick and muffled, so that the words can hardly be understood.]

The swelling may be so great as to prevent closure of the mouth, on the one hand, and as to impede respiration, on the other, so that the patient, for the time being, is in a deplorable condition. In cases of moderate severity the symptoms gradually abate; but in severe cases they continue until an abscess is formed, and when that is discharged spontaneously, or by the surgeon’s knife, the

severity of the symptoms cease almost instantly, and complete recovery ensues in a few days.

**Treatment.**—There is some danger in allowing an abscess in the tonsil to open of itself, as the pus may fall into the larynx, and produce suffocation. In all cases, therefore, where the tonsil is inflamed, medical aid should be promptly solicited. Meanwhile ice or iced water externally and internally, a purging enema of salt and water, and rest in the recumbent posture, may be instituted at home until the arrival of the physician.

[The inhalation of vapor from hot water will often give temporary relief to some of the symptoms.

The patient must not attempt to swallow solid food, but should take as freely as the pain of swallowing will permit, ice-cream, soups, gruels, iced milk, custard, etc. The prescription of stimu-

FIGURE 120.—Enlarged tonsils and elongated uvula.

lants had better be left to a physician. The use of guaiacum in doses of two grains of the powder, repeated every hour, will sometimes put an end to an attack in its earliest stages.]

### Diphtheria.

*Diphtheria* is a form of blood-poisoning, of which inflammation of the throat is but one symptom. It is often fatal; occurs at all seasons; is often common in certain localities where there is excessive ground-moisture from bad drainage; and attacks individuals of any age.

It is due to a peculiar poisoning of the blood, the exact nature of which is unknown, but which is believed to be in great measure connected with poisonous emanations from defective sewerage. Young children who have been weaned from the breast are quite liable to it up to the age of ten or eleven years; after which the susceptibility declines, though it is never lost entirely. The chief manifestation, apart from general symptoms of sore throat, with a state of low fever, is the appearance of a peculiar membrane on some part of the throat, usually commencing on the tonsils, which in some cases may eventually cover the entire throat, the walls of



the nasal passages, the larynx, wind-pipe, and bronchial tubes, and even other mucous membranes, as well as abraded portions of the skin. When the air-passages become involved, there is an additional danger from suffocation; but though many cases die from this cause, the greater number die exhausted by the debilitating effects of the poison. There is a mild form of sore throat, not accompanied by low febrile symptoms, in which there also appears an exudation upon the throat. This is apt to be mistaken for diphtheria, but differs from it in there being no tendency to death from blood-poisoning. It is often very difficult for even a physician to discriminate between the two affections at the outset; and hence the occurrence of sore throat with any evidence of a whitish or yellowish patch or streak about the tonsils or palate should always occasion sufficient alarm to send for medical advice at once, for if a mistake is made it may be fatal, inasmuch as severe cases of diphtheria are not likely to recover unless judiciously managed from the start. If there be languor, fever, sore throat, and patches in the throat, especially if there is swelling of the glands under the jaw on the side affected, it is quite likely that the case is diphtheria.

**Treatment.**—A case of diphtheria should be isolated as far as practicable from every one but the necessary attendants, and no stuffed furniture or drapery should be permitted in the sick-room; for the disease is contagious, and the infecting matter is very apt to adhere to upholstery, carpets, and the like. The best thing to be done pending the advice of a physician, is to place the patient in a room of not less than  $70^{\circ}$  temperature, avoiding draughts, while securing free ventilation; and to encourage the patient to keep bits of ice in the mouth; to place cloths wrung out of iced water around the throat, and replace them every two or three minutes as they get warm, and to keep up a plentiful supply of good, strong soup, milk punch, and as liberal an allowance of well-cooked animal food as can be taken without disgust. There need be no hesitation in giving brandy, whiskey, or rum, in small quantities, quite frequently, even every hour if the patient is getting weak, so long as there are no signs of approaching intoxication. If there are any such signs of its intoxicating influence, it is evidence that too much liquor is being given. It is useless to mention here any remedies to be used. In a malady so serious as diphtheria remedies are unsafe in unskillful hands. There is no remedy that will cure the disease, but such means will be used by the physician as will best keep up the patient's strength, promote his appetite, soothe his sufferings, and detach the membrane from the air-passages when they become involved. If the physician's services cannot be promptly secured,

it is usually safe to administer chlorate of potassium (two grains to a child about one year of age, five grains to one of twelve, and ten to an adult) and tincture of the chloride of iron (five drops to a child of a year or two, ten drops to one over twelve, and twenty to an adult) in sweetened water made palatable by lemon-juice or lemon-syrup, every two or three hours. In bad cases, sleep should be disturbed to give the medicine. Sometimes the membranes in the air-passages threaten eventual destruction by suffocation, and it becomes necessary, as in croup, to avert this danger by making an artificial opening into the windpipe through which the patient can breathe; and if the deposits be not too extensive below this opening, it gives the patient a good chance to live longer, so that, if his strength and vitality are sufficient, he may pass through the remaining stages of the disease and recover; but the operation is not in itself curative. Active measures are still requisite, and extra attention is essential to take care that the artificial opening does not get clogged up with mucus or false membrane, and thus make matters worse than before. Sometimes the matters expectorated accumulate in the mouth in dangerous quantity, and require to be removed by the fingers or the *mop*. This operation, often effective in children between two and twelve years of age (in whom the small size of the windpipe admits of less swelling of the lining membrane than is the case with a grown person), is rarely of any avail in the adult.

#### Relaxation of the Palate—Elongated Uvula.

This is a frequent ailment in persons subject to sore throat, the chief symptom being a frequent cough from titillation of the tongue, or of the valve on top of the larynx, by the tip of the uvula, especially while lying down. Many cases of chronic cough are due to this cause. (See Fig. 120.)

The Treatment consists in cutting off a portion of the elongated uvula, and thus removing the source of the evil. Slight cases and ordinary relaxation of the palate can sometimes be cured by the frequent use of pellets of ice in the mouth, or by sucking alum, catechu, or borax. A long tapering uvula can rarely be relieved without an operation.

#### Chronic Pharyngitis; Clergymen's Sore Throat; Chronic Sore Throat.

Clergymen are by no means the only individuals affected with chronic pharyngitis; public speakers generally, teachers, actors,

newsboys, salespeople—in fact, all persons who are compelled to use the voice a good deal in all weathers, are extremely liable to the affection. Chronic pharyngitis is characterized by increased redness of the various structures of the throat,—enlarged blood-vessels being visible on various portions of the surface, with a rough or raw appearance of the parts, and little groups of elevations here and there, due to enlargement of the glands which secrete the mucus that keeps the throat moist, pliable, and comfortable. There is more or less accumulation of viscid mucus, which is prone to adhere in strands or clumps to the raw surface.

**The Symptoms** are chiefly those of annoying sensations of discomfort in the throat, with more or less hawking to free the throat from mucus. Sometimes, however, there is considerable pain and heat in the throat, and often more or less hoarseness from extension of the disease into the larynx. (See Chronic Laryngitis.) There



FIG. 121.



FIG. 122.

FIGURE 121.—Apparatus for making a spray by means of steam-pressure. (Codman & Shurtliff's apparatus.)

FIGURE 122.—Apparatus for making a spray by means of air-pressure.

is a good deal of apprehension on the part of the public that the disease in the throat may extend to the lungs and eventuate in consumption; but this does not take place unless the individual is predisposed to consumption, or acquires a disposition to it. When there is a predisposition to consumption, however, it is quite likely that it may be accelerated by this chronic sore throat.

**Treatment.**—The disease is a chronic one, usually of long standing before it attracts much attention; and it is therefore one which requires a good deal of time in its treatment. The habitual use of weak gargles of alum, borax, and chlorate of

potash (five to ten grains to the ounce of water), is advisable ; and it is well to use these solutions in the form of spray by means of the so-called atomizer (Figs. 121 and 122), which breaks the fluid up into a minute spray, and at the same time propels it with considerable force so that the remedy reaches a great many parts that cannot be reached by gargling. A careful attention to easily digested diet is also of great importance; while the bowels, kidneys, and skin should be kept in as healthy a condition as possible. If this simple treatment does not suffice, the aid of the physician must be invoked to make local applications of tincture of iodine, nitrate of silver, or other remedies. There is a great deal of prejudice against the use of nitrate of silver, which is far the best agent in most cases; and this arises from the idea that it is to be used as a *caustic* to burn something away. This is not so. An application of nitrate of silver leaves an impermeable white coating on the parts, which protects them temporarily from the air and from impure saliva, and thus gives the parts beneath the coating a chance to get well. This is the whole secret. The application must be thoroughly made by a competent person, and need not be repeated until the coating falls off, which usually takes place in from one to three days. Two or three thorough applications a week, with a strong solution, or even with the solid nitrate of silver, will be much more effectual than daily pencillings with a weak solution. These applications should never be made by unskilful hands, or they will do harm instead of good. Hence no directions are given as to the strength of the solution and the manner of application.

Internal remedies are incompetent to cure the disease, no matter how skilfully selected ; but they are almost always required to correct some defect of nutrition, the continuance of which retards the cure ; and these remedies vary, of course, with each individual case.

Public speakers must use the voice as little as possible during the treatment, and the use of tobacco and alcoholic beverages should be given up. It is not necessary to observe that absolute disuse of voice so essential to prompt recovery in inflammatory affections of the larynx itself, in which the vocal cords participate directly in the diseased process.

#### **Acute Laryngitis—Inflammation of the Larynx.**

This is an acute inflammation of the mucous membrane of the larynx, from cold or from local injury. It sometimes occurs in patients affected with typhoid fever, small-pox, and other diseases ; it occurs from swallowing and inhaling hot or acrid substances ;

but in the great majority of cases it is the result of abrupt exposure to excessive changes of temperature. The symptoms, though severe, are not threatening, and the inflammation is superficial. Still there is a liability to the sudden, or more or less prompt effusion of serum (fluid part of the blood) beneath the mucous membrane of certain portions of the larynx, producing a dropsy of the part, which may seriously interfere with respiration and even produce suffocation if not promptly relieved by the knife of the surgeon,—for medicines are of no avail in this critical condition. Whenever, therefore, in the course of a sore throat, any serious impediment to respiration takes place suddenly, or during the course of a few hours, a physician should be promptly summoned, or a fatal disaster, that could otherwise have been averted, may ensue from neglecting to do so.

**The Symptoms** of laryngitis are pain in the deeper portion of the throat (often increased on pressure externally), hoarseness, brassy cough, difficulty or pain in swallowing, and some impediment to respiration.

**The Treatment** consists in maintaining absolute rest in the recumbent posture, disuse of the voice, unloading of the bowels by a dose of Epsom salt (one ounce for an adult) or other saline, and keeping them in a soluble condition, and the local use of ice externally and in the mouth. The diet should be fluid and mucilaginous, so as to be swallowed with the greatest ease, and acid drinks may be allowed if they do not hurt the parts. If the patient goes about his usual pursuits, he is liable to a serious and sudden increase of the inflammation, which may lead to suffocation before he can get medical assistance, and the danger of this complication exists in almost every case. An amount of inflammation which would be insignificant in any external part of the body, and devoid of immediate danger anywhere else, is a very serious affair in the narrow portion of the larynx, and apt to end in death by suffocation. Most cases of laryngitis, therefore, demand the assiduous attention of a physician. If there is much fever, a small dose of Epsom salt (one teaspoonful for an adult) and tartar-emetic (one-eighth of a grain for an adult), or antimonial wine (a few drops) in water, may be taken at intervals of eight, six, or four hours, according to the urgency of the symptoms.

#### **Chronic Laryngitis—Chronic Inflammation of the Larynx.**

This disease is often the result of a succession of more or less acute attacks. Sometimes it is an extension of chronic inflammation of the pharynx. (See page 392.)

**Symptoms.**—These are chiefly hoarseness, a brassy sort of cough, with or without a sense of pain deep down under the breastbone, due, usually, to extension of the disease to the windpipe, and, finally expectoration. The structures affected cannot be examined without the laryngoscope (see Fig. 117, p. 382), and when thus examined reveal the usual signs of chronic inflammation, redness, swelling, more or less mucus in the parts, and sometimes superficial ulcerations. There are no deep ulcerations in simple chronic laryngitis; but in that form of the disease attendant upon tuberculous consumption there is certain to be ulceration, often with more or less destruction of various tissues, even including the cartilages. The same remark holds good with regard to the chronic laryngitis of syphilis, and some other blood diseases. Simple chronic laryngitis, properly managed, is a curable disease (though otherwise likely to continue for years uncured); so is the chronic laryngitis of syphilis, provided the destruction of tissue has not proceeded so far as to be mechanically incompatible with life; but the chronic laryngitis of tuberculous consumption is, in most instances, incurable, though, on the whole, consumptive patients with ulceration of the larynx are apt to live a year or two longer, on the average, than those in whom the disease does not involve this organ. From four to seven years may be said to be the average duration of life after the development of tuberculous inflammation in these cases.

The Treatment of chronic laryngitis demands attention to the general health, in the first instance. Scrofulous and consumptive individuals need cod-liver oil; syphilitic patients require anti-syphilitic treatment; those who are anaemic or pallid often (not always) require iron in some form, and so on, according to the defect or injury in the general condition. Local treatment by inhalation of medicated vapors, or sprays, or the application of fluid substances by means of brushes or swabs, is almost always indicated, and the

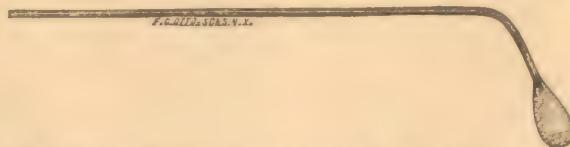


FIGURE 123.—Sponge attached to a curved whalebone, called a probang, used for applying medicated fluids to the throat.

choice of these must be left to the medical adviser, since much harm is done by the injudicious and promiscuous resort to these agents without competent advice. In severe cases, especially those of tuberculous ulceration, there is great difficulty in swallowing; each effort producing an amount of distress that appears incredi-

ble when detailed to those who have not witnessed it. The swallowing of a little sweet-oil, before each attempt at swallowing food, will often be of great service in such instances. Feeding by the bowel, for a few days, is often of great use in these cases, letting the throat rest from swallowing until it is better able to resume its functions.

Great difficulty of respiration exists in many cases, and sometimes threatens suffocation to such an extent as to demand an artificial opening into the windpipe. This operation, when timely performed, will often prolong life for months in tuberculous cases—occasionally for years. In syphilitic laryngitis this operation may really save the patient's life; for the disease itself is not at all necessarily fatal, as tuberculous disease is apt to be, and time will thereby be gained for the effect of remedies which improve the general condition of the system.

#### Croup—Membranous Laryngitis; Hives.

Croup is an inflammatory affection of the upper air-passages attended with the formation of a false membrane on the walls of the larynx and windpipe and even in the bronchial tubes, similar to that which is formed in diphtheria, with this difference: that there is no blood-poisoning in croup, and the main source of danger is from suffocation. Neither is there the debility in the earlier stages of croup that is present in diphtheria. The number of respirations keep their normal proportion to the beats of the pulse (about 1:4) for a long time, instead of soon losing in ratio, as is the case in diphtheria. The disease rarely attacks the adult, and is not contagious. The immediate exciting cause of croup in children is usually more or less sudden exposure to cold, as in taking a child from the bed to the window to see a procession, and so on. The vicious method in which silly parents keep their little children half-undressed, with neck and shoulders, and legs and knees, more or less exposed, is responsible for many deaths-a-cold by which the lives of their little ones are sacrificed at the shrine of vanity.

**Symptoms.**—Croup usually commences in a cold with the ordinary symptoms, but in a few days, sometimes in twenty-four hours, there is difficulty of breathing with more or less impairment of voice. Some cases of croup are attended by spasm of the air-passage, but not nearly so frequently as is generally supposed, many cases being entirely without it. The hoarseness usually attracts attention at night or toward morning, for the first time; and at the same time there is a harsh, brassy sounding cough

likened to the sound of a cock's crow. After a while the cough gets hoarse like the voice, and then, often, both become gradually muffled, so that they do not attract attention when the child is not watched. When the membrane is on the vocal cords, the voice and cough will hardly be audible. There is a shrill sound in drawing in the breath, and the hollow of the neck just above the breast-bone will be seen to become deeper at each inspiration. As the case gets worse, the soft parts below and between the ribs will also be seen to sink in during inspiration. These phenomena are mechanical altogether. Sufficient air to fill the lungs cannot be forced through the narrowed air-passages; and hence, as the ribs are raised by the action of the chest muscles, the atmospheric air outside presses the soft parts inward. When the air-passages are similarly implicated in diphtheria, the same mechanical phenomena take place from the same physical cause. Many cases of croup cannot be distinguished from diphtheria. Indeed, some physicians believe the two to be identical in character; while others (whose views

seem most reliable in the writer's estimation) contend that there is no element of blood-poisoning in croup. To ward off the threatened suffocation, the same operation is often required as in diphtheria when the larynx and windpipe are involved; but the chances of success are infinitely better in croup, because there is no special blood-poisoning to counteract.

When a child has the difficulty of breathing just described, an atmosphere of steam from boiling clothes in a boiler, or some other means, as a croup-kettle (Fig. 124), for instance, or some extemporaneous substitute for it, as it is rarely to be had when required, should be maintained near

it, to keep the deposits moist and loose, so that they can be coughed out. Raising the clothes now and then out of the vessel diffuses an atmosphere of steam about, just as is seen in the laundry or kitchen. Slacking lime in the room near the patient is a good

\* [In having this made by a tinsmith, the lamp should be provided with three or four wicks, instead of a single one, and the tube for conveying the steam should be longer, and made double, that is, with an outer tube somewhat larger than the inner one and so constructed that an air-space of about half an inch will intervene. This will serve as a non-conductor of heat and prevent the steam condensing to water before it reaches the interior of the crib. The funnel in the top is closed with an ordinary cork and admits of the introduction of hot water without disturbing the steam-pipe.]

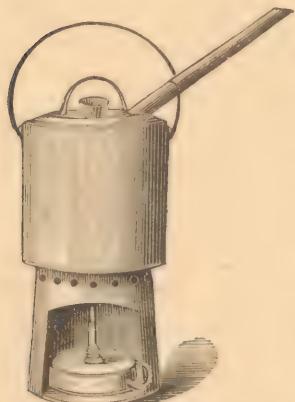


FIGURE 124.—Croup-kettle.\*

method of getting up a vapor of steam ; besides which there is a certain amount of mechanical benefit from the minute particles of lime held in suspension in the vapor, which assists in detaching the membranes from the air-tubes. An occasional vomit of mustard and water, a tablespoonful to the half-pint, or of equal parts of alum and molasses in tablespoonful doses, is advisable in most instances, pending the arrival of the physician who should be summoned at the first moment of alarm. Very few physicians will blame a parent for instituting the measures just recommended before he reaches the bedside. Anything more active is hardly safe in unprofessional hands, unless it be the rubbing of the throat and chest with a lotion of turpentine and sweet-oil (half and half), the turpentine liniment of the apothecary shops [or that described in the chapter of Formulas].

Should the case be urgent and no medical aid be at command, more active measures may be resorted to to induce vomiting, if those mentioned are insufficient. The vomiting is very necessary in order to excite involuntary expectoration in young children, whose air-passages are rather tolerant of accumulating products, and who cannot be taught to make voluntary efforts at cough and expectoration. In larger children this necessity for the emetic is not so urgent, and sometimes is entirely wanting. In the action of an emetic there is a perspiration, so to speak, excited in the interior of the air-passage, similar to the visible perspiration in the skin so often accompanying this act. This loosens and detaches the membrane and excites the paroxysms of cough by which it is expelled. Before there is any membrane it is worse than useless to vomit the child ; it may be injured and so reduced by it—for all emetics are weakening—that it will not have strength to withstand this treatment when the time comes for its judicious administration. On account of this debilitating tendency, tartar-emetic, or antimonial wine, sulphate of mercury (turpeth mineral), or sulphate of copper, should never be used to vomit a young child except by the advice of a competent attendant who knows what he is about, and usually has some special reason for resorting to these measures. Syrup of ipecac (one teaspoonful to a child about a year of age, and a tablespoonful to one of twelve years) may be used instead, and repeated, if it does not operate, every ten minutes for two or three doses and no more; for, if the emetic fail to vomit and be retained in the stomach, it not only is liable to produce injurious effects at the time, but will do so afterward if the child gets better and stronger, when the stomach and intestines, resuming their functions, absorb, to their detriment, the drugs that lay inert, like a drug in a box, while these organs remain too de-

pressed to absorb them. Tickling the back part of the throat with a feather, or passing the forefinger down the gullet, is sometimes successful mechanically even when drugs fail, and should be resorted to in preference to powerful drugs, if simple emetics like the mustard or alum fail to effect their purpose. But, before any emetic is used, it must be certain that there is an indication for it. This is surmised by the rattling in the windpipe beneath the breastbone, and the difficulty in breathing freely. The emetic may be repeated every six or four hours with young children, and on a return of symptoms with children of a few years of age. If the bowels have not been moved recently, a dose of castor-oil or of magnesia sufficient to produce a loose stool should be employed. The diet of a young child should be milk only ; but eggs, light meat-broths, and a moderate amount of farinaceous food (corn-starch, arrow-root, tapioca, farina, and so on) may be given to a child of two years of age or more. If the child is weak, a dose of quinia (half a grain to two grains to a child under two years, and three to four grains to one from four to six years or more) may be given and be repeated at intervals of six or eight hours ; or the tincture of chloride of iron may be given (two drops to a child under one year, three to five drops to one from two to three, and ten drops to one of ten or twelve) at intervals of four or six hours. If there is much evidence of inflammation in the throat, the neck may be enveloped in a wet poultice of raw cotton or spongio-piline, which is to be covered with a layer of oiled silk or oiled paper, to retard evaporation and keep up the moisture.

When the voice and cough become muffled, showing the formation of membrane, the temperature of the apartment is to be elevated to  $85^{\circ}$  or  $90^{\circ}$ , and the atmosphere is to be kept more copiously loaded with steam to keep the products soft and easy of expectoration. If the methods already narrated are insufficient, wet cloths may be hung around the bed or crib, and be changed from time to time. A wash-boiler may be brought to the bedside and the immersion and withdrawal of towels be kept up. A large tin-pan of water may be placed on a portable stove near the patient and kept boiling, the vapor being directed over the mouth by means of large sheets of stiff paper, or some other contrivance. Care must be taken to keep up this evolution of steam without cessation. The air of the bedroom should be kept ventilated by an open window in an adjoining room or stairway, a screen formed by a sheet hung over a line being placed in front of the door of communication, or around the bed or crib, to protect the patient from draught. If the room is large, the bed may be brought close to the stove, with sheets hung around it so as to retain the steam in its vicinity.

The writer knows of no treatment more efficacious than the steaming in this stage.

When respiration becomes difficult from accumulation of membrane in the air-passages, small pieces of lime should be slacked by the side of the bed, in any convenient vessel, and the fumes that rise from it be directed toward the mouth of the patient by a funnel-shaped cone of stiff wrapping-paper, or a stiff paper bag (such as a flour-bag) with one corner cut off, and inverted over the vessel. The patient must not be brought too near the hot vapor, and the attendant in charge should protect the eyes by the hand or by a cloth. This should be kept up for ten or fifteen minutes at a time and be repeated every half-hour, hour, or at longer intervals, according to circumstances, the indication for its removal being increased difficulty in respiration. It excites cough and the extrication of quantities of the false membrane.

This treatment by steaming and lime is apt to produce capillary bronchitis and even inflammation of the lungs, which require attention subsequently, but it often succeeds in overcoming the fatal effects of the croup when nothing else will do so. Care must be taken to avoid exposure after treatment of this kind, and the withdrawal of the steam and diminution of the temperature should be accomplished gradually after they have become no longer requisite. When the writer has been asked professionally how it will be known when the ebullition of steam is sufficient in bad cases, he has been accustomed to reply, "When the wall-paper gets loose from the walls."

During all this time care must be taken to sustain the child by food, stimulating it, if requisite, by the free use of alcoholic liquor in some form.

[Owing to the prompt relief which often follows the thorough inhalation of steam or vapor, and the difficulty which may sometimes be met with at night and in a cool room in filling the air with the necessary amount of vapor, the following plan may be found serviceable:

The child being put into a crib or cradle, if it is not already in one, it should be covered with a heavy blanket or quilt supported on chairs, or the ends of the crib, if they are high, or upon barrel-hoops fastened to the head and foot, so as to form an enclosed air-space.

If a gas-stove or kerosene-stove is at hand, a tea-kettle partly filled with water may be put on it and arranged at the side of the crib so as to be covered by the blanket. Some person should sit constantly by the crib, with the head under the covering, to prevent the child being alarmed by the procedure, to regulate the

amount of steam, guard against the clothing taking fire from the stove, and prevent the limbs of the child being scalded by coming too closely in contact with the escaping steam.

Where a portable stove of the kind mentioned is not obtainable, a large dish, such as is used in making cake, can be partly filled



FIGURE 125.—Arrangement of a crib with blankets for using a croup-kettle.

with boiling water and will give off steam for several minutes. By heating smoothing-irons, or pieces of brick, and immersing them gradually into the water in the bowl, an abundance of steam can be formed. Lime can also be slackened in a dish so arranged without the necessity of filling the entire room with its vapor.

Another method of limiting the space to be filled with vapor is to choose a corner of the room into which the crib can be put, and a blanket hung across so as to form a curtain.]

The remarks concerning tracheotomy in diphtheria (p. 392) are equally applicable to croup.

#### SPASM OF THE LARYNX—FALSE CROUP.

*Spasm of the larynx* is not an infrequent disease of young children, and is often mistaken for croup. It is a nervous affection, due to what is known as “reflex irritation.” The exciting cause may be indigestion (especially during teething), worms, earache, or run-

ning ears, elongated fore-skin, glandular swellings anywhere, rickets, or scrofula. There is no special impairment of general health. There is a sudden attack of difficult breathing, with a peculiar stridulous or crowing noise in the throat, and after the spasm has lasted a few seconds or a minute, it usually gives way, and then there is no more evidence of disease than before. The voice is good; there is little or no sore throat. The larynx becomes spasmically closed in the paroxysm, and if it does not let up in a minute or so, death from suffocation may result. This result is rare, but does occur now and then. These attacks are more frequent at night, but take place in the daytime also, and may recur several times in the twenty-four hours, or at longer and irregular intervals. The disease also occurs in adults, and is a reflex manifestation due to diseased conditions elsewhere, the same in nature, though not always the same in kind, as in the child. Though the disease is comparatively rare in the adult, it is, perhaps, even more proportionately fatal.

The Treatment of this disease during the suffocative spasm consists in dashing cold water on the face and chest, in holding ammonia near the nose, the use of one of the emetics recommended in the foregoing section, and immersion in a warm bath, if accessible. In a child subject to these spasms, a warm bath should always be at command. In the intervals, such general treatment is required as the nature of the case demands. Swollen gums should be scarified, the bowels should be kept in good condition, running ears should be kept well syringed, and so on. In addition to this, cod-liver oil or extract of malt are often of great value, with warm clothing, avoidance of draughts of air, and of all measures calculated to alarm or excite the child. Bromide of potassium and belladonna are the drugs most frequently serviceable to counteract the tendency to spasm, but they must be given in accordance with the direction of an attending physician.

#### Aphonia—Loss of Voice.

*Aphonia*, or loss of voice, without any other evidence of disease, is usually a nervous complaint, due to paralysis of the vocal cords, as a reflex result of disease elsewhere. It usually occurs in females, and most frequently in hysterical individuals. Sometimes it persists for weeks or months, occasionally for years; but in most instances the voice comes and goes at irregular intervals of a few days or a few weeks.

Aphonia is sometimes due to tumors of various kinds in the head, neck, and chest, compressing the nerves that are necessary

for the muscular movements of the voice ; and in these instances the paralysis is usually unilateral. Loss of voice also accompanies some cases of inflammation of the larynx ; and sometimes is due to the presence of warts or other morbid growths which prevent the vocal cords from being properly approximated. A laryngoscopic examination is usually necessary to determine the nature of the aphonia.

**Treatment.**—Simple nervous aphonia is usually cured promptly by the passage of a current of electricity through the vocal cords. Sometimes an acrid inhalation will restore the voice by inducing, for the moment, spasm of the cords, thus overcoming the paralysis. The passage of a sponge into the larynx will often do the same thing. Sometimes it can be accomplished by the action of a smart emetic. The use of a tonic, such as quinia, or cinchonidia (which is much cheaper and just as efficacious), in doses of from three to ten grains in the twenty-four hours, is often serviceable. Aphonia from inflammation of the larynx will pass off with the inflammation. Aphonia from disease of the brain, neck, or chest, requires treatment for the original disease, all merely local treatment being injurious. Aphonia from tumors in the larynx requires the removal or destruction of such growths. Reflex aphonia requires treatment of the organ from which the reflex paralysis originates (womb, bowels, spinal cord, etc.).

J. SOLIS COHEN, M.D.



